Curtis Lin, Ph.D. MIDS

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SUMMARY

A Cancer Systems Biologist and Data Scientist with over 10 years Data Science/Systems Biology experience and 6 years pharmaceutical industry experience in executing and leading biologics discovery and development as listed. **(1)** Preclinical discovery and development of therapeutic antibodies and bispecific antibodies (Patent WO/2021/102372, WO/2021/102376), **(2)** Accelerating early discovery and optimizing process development of biologics using modern Data Science and Systems Biology approaches including, machine learning/deep learning algorithms, -omics analysis, cloud computation, NLP, and data visualization, **(3)** Biologics manufacturing quality control, tech transfer to GMP environment. **(4)** Collaborated with cross-functional/company/institutional teams on strategic planning, risk assessment, and project development. **(5)** Team management and resource allocation, **(6)** Developing Data Science/Systems Biology strategies to facilitate data-driven biomarker discovery and execute MOA studies (Patent WO/2019/173456, WO/2014/138101)

EXPERIENCE

Seagen Inc, Bothell WA – Principal Scientist, Data Science, Technical Development **Jan 2021 – Present**

- Led and developed the integrated Data Strategies to facilitate (1) process and drug development acceleration, (2) manufacturing process optimization, (3) risk minimization and safety enhancement
- Led a team and developed novel Crowdsourcing Platform (NLP) to support organizational knowledge management
- Developed Data-centric Machine Learning approaches to improve the process of cell line development
- Developed Data Pipeline, Digital Solutions, and Visualization tools to support product development of mAb and ADC
- Conducted planning, coordination, resource allocation, and risk management to support time-sensitive projects
- Built Data Analytics team, established team operation strategies, and managed team with 6 direct reports
- Leveraged wet bench experience and knowledge to develop effective and modern Data Analytic (AI/ML/DL/NLP) strategies and drive process innovation

AbVision Inc, Milpitas CA – Associate Director, Research and Development **Jun 2018 – Dec 2020**

- Led the programs of early-phase discovery and preclinical development of therapeutic monoclonal antibodies and bispecific antibodies in Immuno-oncology (2 mAb patents, 1 bispecific patent, and 2 company news release)
- Led a team to develop a novel Machine Learning-assisted platform for accelerating therapeutic antibody discovery with Cell Sorting, Single Cell Sequencing, Sequencing Analysis, and Machine Learning algorithms
- Established academic and industry collaborations to support pipeline programs and outline development plans
- Prioritized projects, allocate resources, coordinate team, and provide technical leadership to support timeline
- Supervised and managed junior scientists, postdocs, and RAs with resource and technical supports (>10 members)

SanBio Inc, Mountain View CA – Scientist II, Quality Control/Research **Jun 2016 – Jun 2018**

- Led and executed data-driven biomarker strategies and development projects to support clinical manufacturing
- Developed biomarker-based qPCR assays to assist in-process control and supported process validation of cell manufacturing process and scale-up production for phase 2/3 clinical trials
- Developed, optimized, and transferred validated assays to GMP environment
- Worked with cross-functional teams to oversee and troubleshoot on-going product testing in CDMO and CTL
- Reviewed documentations include standard procedures (SOP), deviations, tech transfer reports, batch records, qualification reports, validation reports, and specifications during cell product development

MD Anderson Cancer Center, Systems Biology, Houston TX – Project Lead/Postdoct Fellow **Aug 2011 – Oct 2015**

- Lead the cross-institutional team to successfully execute a 3.5 million Department of Defense-funded project (1 patent, 4 publications, 2 gene expression dataset submission, and AACR award)
- Developed Systems Biology/Data Science strategies and obtained funding from Cancer Prevention Research Institute of Texas for developing biomarkers and compounds to effectively targeting DNA damage response defective cancers, uncover MOA, and accessing the patient responses to immunotherapy (1 patent and 2 publications)
- Co-developed a novel algorithm to robustly access homologous recombination status and PARP inhibitor sensitivity

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EDUCATION

Master in Information and Data Science, University of California, Berkeley, Berkeley, CA **2018-2020**
Postdoc Fellow in Systems Biology, University of Texas MD Anderson Cancer Center, Houston, TX **2011-2015**
Ph.D. in Biochemistry and Cell Biology, Rice University, Houston, TX **2006-2011**
M.S. in Biochemical Sciences, National Taiwan University, Taipei, Taiwan **2000-2002**
B.S. in Chemistry, National Cheng Kung University, Tainan, Taiwan **1996-2000**

PATENTS

- **Anti-PD-1/CD47 Bispecific Antibody and use thereof** (in provision) **2021**
  Lin C.C., Chao C.C., Chen C.H., Zhang G.G., Yan G.
- **Monoclonal antibodies that target human CD47 protein** (WO/2021/102376) **2021**
  Lin C.C., Chao C.C., Chen C.H., Zhang G.G., Yan G.
- **Monoclonal antibodies that target human OX40** (WO/2021/102372) **2021**
  Lin C.C., Chao C.C., Chen C.H., Zhang G.G., Yan G.
- **Replication stress response biomarkers for immunotherapy response** (WO/2019/173456) **2019**
  McGrail D., Lin S.Y., Pilie P, Jonasch E, Lin C.C.
- **Gene signature to predict homologous recombination (HR) deficient cancer** (WO/2014/138101) **2014**
  Lin C.C., Peng G., Lin S.Y., Mills G.B.

AWARDS

- **Susan G. Komen® Scholar-in-Training Awards,** American Association for Cancer Research **2014**
- **Travel Award of 5th Annual NIH National Graduate Research Festival,** National Institute of Health **2011**
- **Dean of Wiess School of Natural Sciences Travel Grant,** Rice University **2008**

DATA SUBMISSION

Gene Expression Omnibus (GEO) database: GSE54269, GSE59227

SCIECTIFIC SKILLS

Systems Biology and Data Science	Cell Biology and Immunology	Cancer and Molecular Biology
R and Python programming	Antibody discovery	Molecular cloning
Gene expression analysis	Immune and primary cell assays	Signaling pathways
High-throughput screening	Single cell sequencing (NGS)	Tumorigenesis
ML/DL algorithms and NLP	2D and 3D cell culture system	Small animal and tumor models
Parallel computation with Spark	Multicolor FACS	ELISA and Immunohistochemistry
Streamlit, Tableau, PowerBI	Cell line development	Xenograft and syngeneic models

NEWS ARTICLES

- AbVision Inc. BioSuperior™ Anti-CD47 Bispecific Antibody, AVI-525B and AVI-535B
  https://www.biospace.com/article/biosuperiortm-anti-cd47-bispecific-antibody-avi-525b-and-avi-535b-/
- AbVision Inc. BioSuperior Anti-CD47 Therapeutic Antibody (AVI-105)
  https://www.biospace.com/article/biosuperior-anti-cd47-therapeutic-antibody-avi-105-/

PUBLICATIONS

- McGrail DJ*, Lin CC*, Dai H, Mo W, Stephan C, Davies P, Lu Z, Lee JS, Lin SY (2018) Defective replication stress response is inherently linked to the cancer stem cell phenotype, Cell Reports, 15;23(7):2095-2106
- McGrail DJ, Lin CC, Garnett J, Liu Q, Mo W, Dai H, Lu Y, Yu Q, Ju Z, Yin J, Vellano CP, Hennessy B, Mills GB, Lin SY (2017) Improved prediction of PARP inhibitor response and identification of synergizing agents through use of a novel gene expression signature generation algorithm. npj Systems Biology and Applications 3, 8

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- Wang W, Zhao J, Wen X, Lin CC, Li J, Huang Q, Yu Y, Lin SY, Li C (2017) MicroPET/CT Imaging of AXL Downregulation by HSP90 Inhibition in Triple-Negative Breast Cancer. Contract Media & Molecular Imaging, 1686525
- Mo W, Liu Q, Lin CC, Dai H, Peng Y, Liang Y, Peng G, Meric-Bernstam F, Mills GB, Li K, Lin SY (2016) mTOR inhibitors suppress homologous recombination repair and synergize with PARP inhibitors via regulating SUV39H1 in BRCA-proficient triple-negative breast cancer. Clinical Cancer Research 22, 1699
- Peng Y, Dai H, Wang E, Lin CC, Mo W, Peng G, Lin SY (2015). TUSC4 functions as a tumor suppressor by regulating BRCA1 stability. Cancer Res., 75(2):378-86.
- Peng G*, Lin CC*, Mo W.*, Dai H, Park Y, Kim S, Mo Q, Peng Y, Siwko S, Hu R, Lee J, Hennessy B, Hanash S, Mills GB, Lin SY (2014) A molecular portrait of the homologous recombination DNA repair via genome-wide transcriptome profiling. Nature Communications, 5, 3361 (co-first author)
- Johnson C, Lin CC, Stern M (2012). Ras-dependent and Ras-independent effects of PI3K in Drosophila motor neurons. Genes, Brain and Behavior, 11, 848-858.
- Lin CC, Summerville J, Howlett E, Stern M (2011) The metabotropic glutamate receptor activates the lipid kinase PI3K in Drosophila motor neurons through the calcium/calmodulin-dependent protein kinase II and the nonreceptor tyrosine protein kinase DFak. Genetics, 188, 601
- Chen Y, Fujita T, Zhang D, Doan H, Pinkaew D, Liu Z, Wu J, Koide Y, Chiu A, Lin CC, Chang JY, Ruan KH, Fujise K (2011). Physical and functional antagonism between tumor suppressor protein p53 and fortilin, an anti-apoptotic protein. J. Biol. Chem., 286, 32575
- Howlett E, Lin CC, Lavery W, Stern M (2008). A PI3 kinase-mediated negative feedback regulates Drosophila motor neuron excitability. PloS Genetics, 4, e1000277.
- Chang JY, Lin CC, Salamanca S, Pangburn MK, Wetsel RA (2008). Denaturation and unfolding of human Anapylatoxin C3a: An unusually low covalent stability of its native disulfide bonds. Arch Biochem Biophys, 480, 104-110.
- Lin CC, Chang JY (2007) Pathway of oxidative folding of bovine alpha-interferon: predominance of native disulfide-bonded folding intermediates. Biochemistry, 46, 3925
- Graidist P, Yazawa M, Tonganunt M, Nakatomi A, Lin CC, Chang JY, Phongdara A, Fujise K (2007). Fortilin binds Ca2+ and blocks Ca2+-dependent apoptosis in vivo. Biochem J., 408,181-191.
- Lin CC, Chang JY (2006) Pathway of Oxidative Folding of Secretory Leucocyte Protease Inhibitor: An 8-disulfides protein exhibits a unique mechanism of folding. Biochemistry, 45, 6231
- Lin CC, Lu BY, Chang JY (2006). Conformational stability of Secretory Leucocyte Protease Inhibitor: a protein with no hydrophobic core and very little secondary structure. Biochim Biophys Acta. 1764, 1286-1291.
- Chang JY, Lu BY, Lin CC, Yu C. (2006). Fully oxidized scrambled isomers are essential and predominant folding intermediates of Cardiotoxin-III. FEBS Lett., 580, 656.

CONFERENCE POSTERS

- Lin CC, Dai H, Mo W, Lin SY (2015) The Defects of Replication Stress Response Facilitate the Formation of Tumor-initiating cells. Exploring DNA Repair Pathways as Targets for Cancer Therapy Conference, Cancun, Mexico
- Lin CC, Dai H, Lin SY (2014) The replication stress response defect is associated with tumor-initiating cell formation. AACR Annual Meeting 2014. San Diego CA, USA
- Lin SY, Peng G, Lin CC, Mo W, Mills GB (2013) A robust gene signature predicting deficient homologous recombination DNA repair. 4th International Conference on Biomarkers & Clinical Research. Philadelphia PA, USA
- Lin CC, Summerville J, Stern M (2010) CaMKII and FAK regulate neuronal homeostasis via PI3K-mediated negative feedback in Drosophila nervous system. 5th Annual NIH National Graduate Student Research Festival. National Institute of Health, Bethesda MD, USA
- Howlett E, Lin CC, Lavery W, Stern M (2007) PI3K regulates neuronal excitability and axonal growth and arborization via distinct effector pathways. The 2007 meeting on Neurobiology of Drosophila at Cold Spring Harbor Laboratory, NY, USA.